

In the Claims:

Please amend claims 13, 15, 18-19, and 24, cancel claim 20 and add new claims 28-31 as follows:

1 - 12. (canceled).

13. (currently amended): A method for encapsulating a solder joint between an integrated circuit chip and a substrate, comprising the steps of:

forming a composition that includes a photoinitiator, a dispersed filler, and a resin precursor, wherein the filler has a particle size of 31 microns or less if the filler is silica, and wherein the resin precursor consists essentially of a cyanate ester monomer, a cyanate ester prepolymer, or a mixture of the monomer and prepolymer;

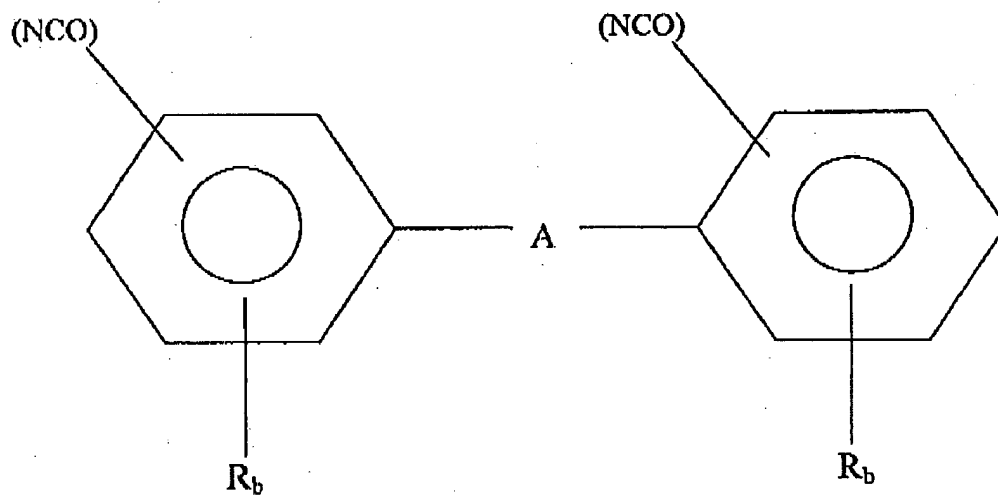
63 applying an amount of the composition at a thickness sufficient to cover substantially all of the solder joint; and

photocuring the composition to reinforce the solder joint, wherein photocuring the composition forms a resin in the composition from the precursor.

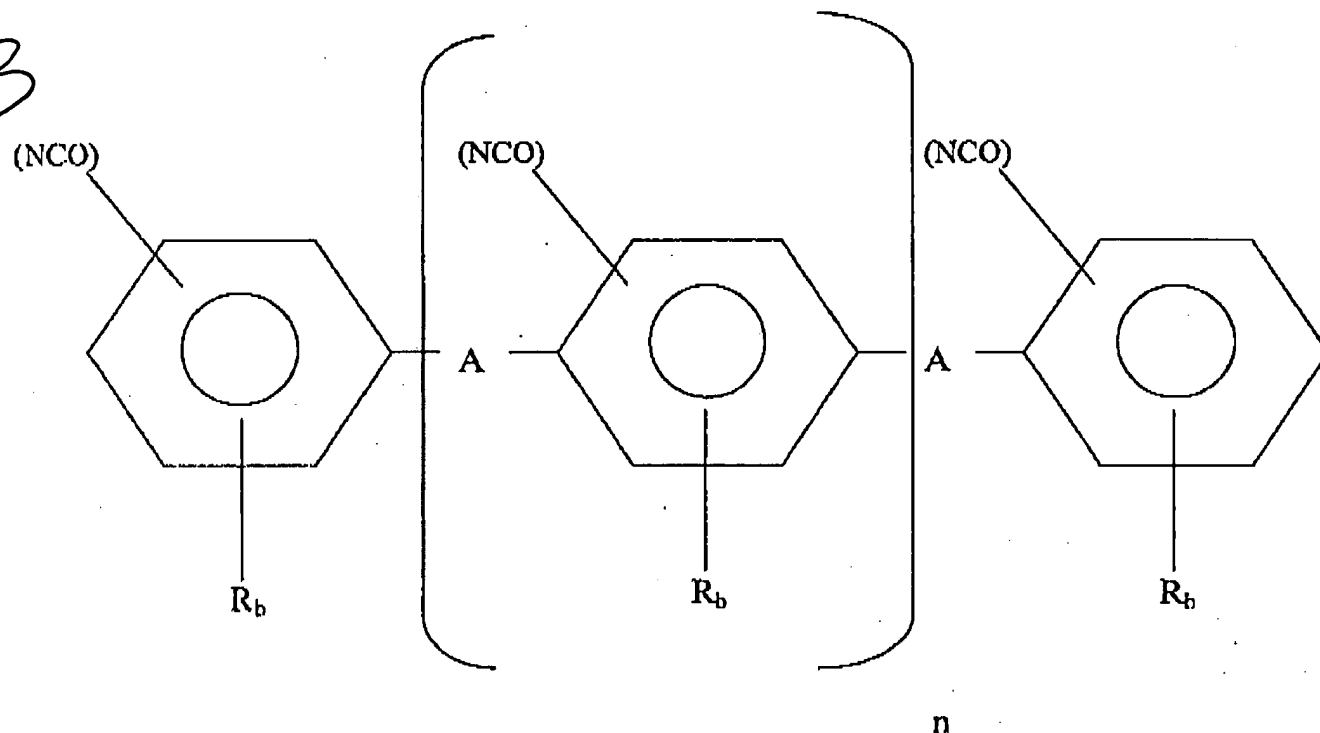
14. (original): The method of claim 13, wherein the cyanate ester includes at least two cyanate groups and is curable through cyclotrimerization.

15. (currently amended): The method of claim 13, wherein the cyanate ester is selected from the group consisting of compounds depicted by formulas 1 and 2:

(1)



(2)



wherein each a and b independently include integers from 0 to 3, and at least one a is not 0;

wherein c includes integers from 0 to 1; wherein n includes integers from 0 to 8; wherein each

each R is independently selected from the group consisting of non-interfering alkyl, aryl, alkaryl,

heteroatomic, heterocyclic, carbonyloxy, carboxy, hydrogen, C₁₋₆ alkyl, C₁₋₆ allyl, C₁₋₆ alkoxy,

halogen, malcimide, propargyl ether, glycidyl ether and combinations thereof; A is selected from

the group consisting of C₁₋₁₂ polymethylene, CH₂, dicyclopentadienyl, aralkyl, aryl,

cycloaliphatic, $\text{CH}(\text{CH}_3)_2$, SO_2 , O, $\text{C}(\text{CF}_3)_2$, CH_2OCIL_2 , CH_2SCH_2 , CH_2NHCH_2 , S, $\text{C}(=\text{O})$, $\text{OC}(=\text{O})$, OCOO , $\text{S}(=\text{O})$, $\text{OP}(=\text{O})$, $\text{OP}(=\text{O})(=\text{O})\text{O}$, alkylene radicals, $\text{C}(\text{CH}_3)_2$, and combinations thereof.

63 16. (previously amended): The method of claim 13, wherein the cyanate ester is selected from the group consisting of cyanatobenzene 1,3-and 1,4-dicyanatobenzene, 2-tert-butyl-1,4-dicyanatobenzene, 2,4-dimethyl-1,3-dicyanatobenzene, 2,5-di-tert-butyl-1,4-dicyanatobenzene, tetramethyl-1,4-dicyanatobenzene, 4-chloro-1,3-dicyanatobenzene, 1,3,5-tricyanatobenzene, 2,2' 4,4'-dicyanobiphenyl, 3,3',5,5'-tetramethyl-4,4'-dicyanobiphenyl, 1,3-dicyanatonaphthalene, 1,4-dicyanatonaphthalene, 1,5-dicyanatonaphthalene, 1,6-dicyanatonaphthalene, 1,8-dicyanatonaphthalene, 2,6-dicyanatonaphthalene, 2,7-dicyanatonaphthalene, 1,3,6-tricyanatonaphthalene, bis(4-cyanatophenyl)methane, bis(3-chloro-4-cyanatophenyl)methane, 2,2-bis(4-cyanatophenyl)propane, 2,2-bis(3,5-dichloro-4-cyanatophenyl)propane, 2,2-bis(3,5-dibromo-4-cyanatophenyl)propane, bis(4-cyanatophenyl)ether, bis(p-cyanophenoxyphenoxy)-benzene, di(4-cyanatophenyl)ketone, bis(4-cyanatophenyl)thioether, bis(4-cyanatophenyl)sulfone, tris(4-cyanatophenyl)phosphite, tris(4-cyanatophenyl)phosphate and combinations thereof.

17. The method of claim 13, wherein the photoinitiator is selected from the group consisting of aryldiazonium, triphenylsulfonium, diphenyliodonium, diaryliodosyl and triarylsulfoxonium salts.

18. (currently amended): The method of claim 13, wherein the filler comprises from composition contains about 40% to about 75% by weight of the composition, dispersed silica

19. (currently amended): The method of claim ~~13~~ 18, wherein the ~~dispersed~~ filler includes fused silica and amorphous silica.

20. (canceled)

63
21. (previously amended): The method of claim 13, wherein a coefficient of linear thermal expansion of the cured composition is from about 26 to about 39 ppm/degree C.

22. (previously amended): The method of claim 13, wherein a glass transition temperature of the cured composition is from about 100 to about 160 degrees C.

23. (previously amended): The method of claim 13, wherein the composition includes from 1 to 20 parts of surface treating agents selected from the group consisting of vinyltrimethoxysilane, vinyltriethoxysilane, N(2-aminooctyl)3-aminopropylmethyldimethoxysilane, 3-aminopropylethoxysilane, 3-glycidoxypropyltrimethoxysilane, 3-glycidoxypropylmethyl dimethoxysilane and combinations thereof, based on 100 parts of the resin.

24. (currently amended): The method of claim 13, wherein the composition further comprises a filler selected from the group consisting of Silica, Aluminum Oxide, 92% Alumina, 96%

09/771,275

7

Alumina, Aluminum Nitride, Silicon Nitride, Silicon Carbide, Beryllium Oxide, Boron Nitride and Diamond powder.

25. (canceled).

26. (canceled).

63
27. (previously added): The method of claim 1, wherein the cured composition exhibits a coefficient of linear thermal expansion of about 26 ppm/°C to less than about 39 ppm/°C and a glass transition temperature between 100 °C and 160 °C.

28. (new): The method of claim 13, wherein the resin precursor is a mixture of polyfunctional cyanate esters with at least one cyanate ester having hydroxy groups and radical-polymerizable unsaturated double bonds.

29. (new): The method of claim 28, wherein a ratio of cyanato groups to hydroxy groups in the cyanate ester is in the range from 1:0.1 to about 1:2.

30. (new): The method of claim 13, wherein the photoinitiator is in the range of from about 0.01 to about 20 weight percent of the composition.

31. (new): The method of claim 13, wherein the photoinitiator is selected from the group

09/771,275

8

consisting of metal carbonyl complexes and ionic salts of organometallic complex cations.

63
